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BLACK ROT OF GRAPE

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Black rot of grape is caused by the fungus Guignardia bidwellii (Ell.) Viala and Ravaz, which has as its imperfect stage Phyllosticta labruscae Thum. The disease has been known since 1802 (2), and is presently distributed in the United States and Canada east of the Rocky Mountains (1). Guignardia was introduced into Europe from this country around 1880, where it has spread throughout the grape-growing regions (1). Black rot, where present, may severely limit grape production.

SYMPTOMS. Leaves: A small concentric spot is the first symptom of disease attack. The spots change from a grayish-brown with a black line margin to its characteristic brown color with a darker brown margin (Fig. 1). The black pycnidia of Phyllosticta appear dotted over the entire surface or confined to a more or less concentric ring when the leaf spot attains a size of 3 to 8 mm in diameter.

Stems, tendrils, peduncles, petioles, and leaf veins: The lesions are seen as small darkened depressions which soon become very black. On canes the lesion may extend only up to a quarter of the circumference of the stem, but it may completely girdle the tendril or leaf petiole. These streaks vary in size from 2 mm to 2 cm.

Berries: The first symptoms are small circular blanched spots which rapidly take on a whitish appearance. The whitish spots increase in size and reddish-brown margins form when the spots are about 2 mm in diameter. The spots increase rapidly

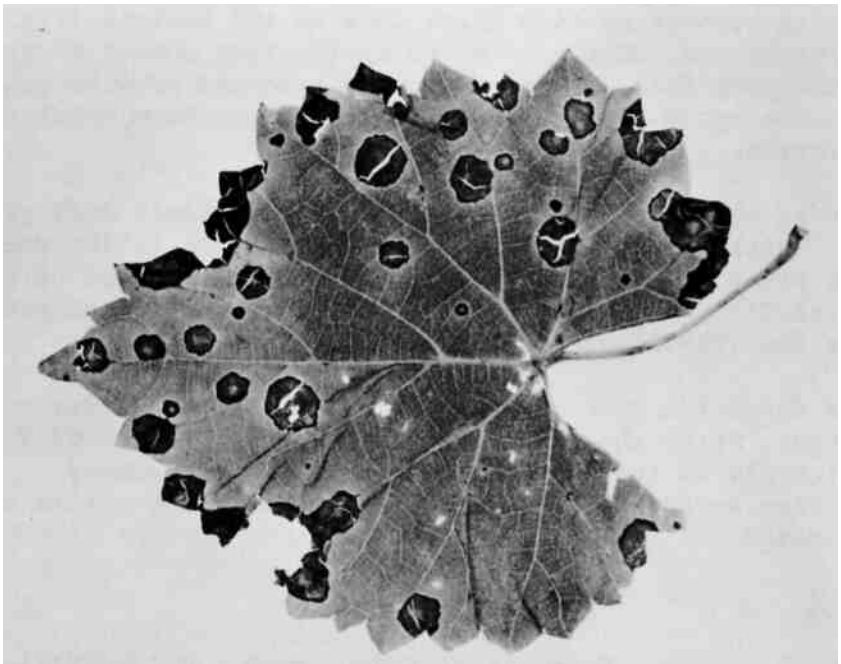

Fig. 1. Black rot of grape showing leaf spots caused by Guignardia bidwellii.

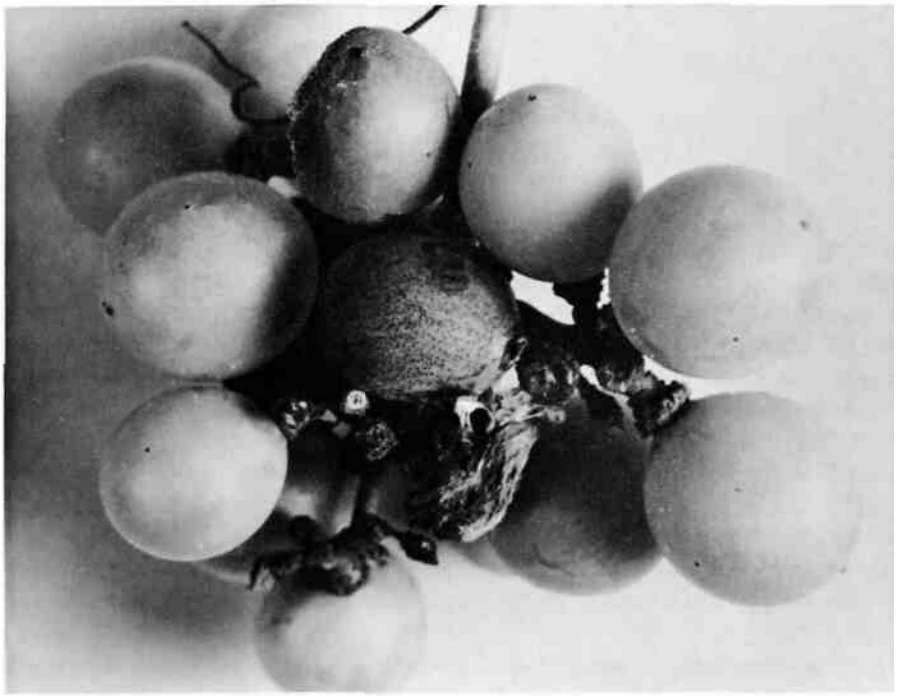

Fig. 2. Black rot of grape showing mummified fruit and pycnidia (Phyllosticta).

in size and form two or three dark concentric rings while attaining a size of 8-9 mm. All of this usually occurs within 24 hrs. After 7-10 days the entire berry shrivels into a characteristic dried, blackened mummy, with the pycnidia of the Phyllosticta stage present as tiny black dots on the surface (Fig. 2). The apothecial stage of the fungus develops in the spring from mummified grapes left in the vineyard from the past fall. The ascospores produced provide primary inoculum to begin a new disease cycle. The disease is favored by warm weather and wet periods of 2-3 days duration.

CONTROL. Pruning and removing infected mummies and canes aids greatly in control of black rot. Cultivation of the vineyards buries the fallen mummies and reduces inoculum; this practice helps to prevent ascospore discharge by the fungus on the mummies. Any practice which allows for better air circulation and rapid drying of foliage reduces the likelihood of infection.

Spraying with a fungicide such as maneb, fermate or fixed copper provides good control of the fungus. Spray should be applied when buds are about 2 inches long, and repeated at intervals of 10-14 days until berries have matured. Sprays should be applied at any time during the growing season when rainy spells of 2-3 days duration are anticipated.

Literature Cited

1. Anderson, H. W. 1956. Diseases of fruit crops. McGraw-Hill Book Co. 501 p.

2. Reddick, P. 1911. The black rot disease of grapes. Cornell Univ. Agr. Exp. Sta. Bull. 293:289-364.